

(19) 世界知的所有権機関
国際事務局



(43) 国際公開日
2004 年 7 月 8 日 (08.07.2004)

PCT

(10) 国際公開番号
WO 2004/056992 A1

(51) 国際特許分類⁷: C12N 9/90, 9/99, 15/09, C12Q 1/533, C07D 401/06, G06F 17/30, 17/50, G01N 33/50

(21) 国際出願番号: PCT/JP2003/016233

(22) 国際出願日: 2003 年 12 月 18 日 (18.12.2003)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:
特願 2002-368112
2002 年 12 月 19 日 (19.12.2002) JP

(71) 出願人 (米国を除く全ての指定国について): 独立行政法人理化学研究所 (RIKEN) [JP/JP]; 〒351-0198 埼玉県和光市広沢 2 番 1 号 Saitama (JP). 財団法人大阪バイオサイエンス研究所 (OSAKA BIOSCIENCE INSTITUTE) [JP/JP]; 〒565-0874 大阪府吹田市古江台 6 丁目 2 番 4 号 Osaka (JP).

(72) 発明者; および

(75) 発明者/出願人 (米国についてのみ): 宮野 雅司 (MIYANO, Masashi) [JP/JP]; 〒679-5148 兵庫県佐用郡三日月町光都 1 丁目 1 番 1 号 独立行政法人理化学研究所播磨研究所内 Hyogo (JP). 山本 雅貴 (YAMAMOTO, Masaki) [JP/JP]; 〒679-5148 兵庫県佐用郡三日月町光都 1 丁目 1 番 1 号 独立行政法人理化学研究所播磨研究所内 Hyogo (JP). 熊坂

崇 (KUMASAKA, Takashi) [JP/JP]; 〒679-5148 兵庫県佐用郡三日月町光都 1 丁目 1 番 1 号 独立行政法人理化学研究所播磨研究所内 Hyogo (JP). 吾郷 日出夫 (AGO, Hideo) [JP/JP]; 〒679-5148 兵庫県佐用郡三日月町光都 1 丁目 1 番 1 号 独立行政法人理化学研究所播磨研究所内 Hyogo (JP). 裏出 良博 (URADE, Yoshihiro) [JP/JP]; 〒606-0804 京都府京都市左京区下鴨松原町 4 3 グラン・シティオ下鴨四季彩館 5 0 3 Kyoto (JP). 入倉 大祐 (IRIKURA, Daisuke) [JP/JP]; 〒565-0874 大阪府吹田市古江台 6 丁目 2 番 4 号 財団法人大阪バイオサイエンス研究所内 Osaka (JP). 有竹 浩介 (ARITAKE, Kosuke) [JP/JP]; 〒666-0143 兵庫県川西市清和台西 1-5-2 0 清和台ハイム 1 号棟 1 3 3 号 Hyogo (JP).

(74) 代理人: 河宮 治, 外 (KAWAMIYA, Osamu et al.); 〒540-0001 大阪府大阪市中央区城見 1 丁目 3 番 7 号 IMP ビル 青山特許事務所 Osaka (JP).

(81) 指定国 (国内): US.

(84) 指定国 (広域): ヨーロッパ特許 (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

添付公開書類:

— 国際調査報告書

2 文字コード及び他の略語については、定期発行される各 PCT ガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

(54) Title: THREE-DIMENSIONAL STRUCTURE OF LIPOCALIN-TYPE PROSTAGLANDIN D SYNTHASE AND UTILIZATION OF THE SAME

(54) 発明の名称: リポカリン型プロスタグランジン D 合成酵素の 3 次元立体構造及びその使用

(57) Abstract: Crystals of lipocalin-type prostaglandin D synthase are produced and analyzed by X-ray diffractometry to give the three-dimensional structure of the enzyme based on which an inhibitor of the enzyme can be designed and selected.

(57) 要約: リポカリン型プロスタグランジン D 合成酵素の結晶を作成し、その X 線回折から該酵素の三次元立体構造を得、それより該酵素の阻害剤を設計、選択することができる。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/16233

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ C12N9/90, C12N9/99, C12N15/09, C12Q1/533, C07D401/06,
G06F17/30, G06F17/50, G01N33/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ C12N9/90, C12N9/99, C12N15/09, C12Q1/533, C07D401/06,
G06F17/30, G06F17/50, G01N33/50

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

SwissProt/PIR/GeneSeq, GenBank/EMBL/DDBJ/GeneSeq, WPI (DIALOG),
BIOSIS (DIALOG), MEDLINE (STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	Eguchi, N. et al., Lack of tactile pain (allodynia) in lipocalin-type prostaglandin D synthase-deficient mice., Proc.Natl.Acad.Sci. USA., Vol.96, No.2, pages 726 to 730, (1999)	4, 5 1-3, 7, 8 10
X Y A	JP 2001-103869 A (Japan Science and Technology Corp.), 17 April, 2001 (17.04.01), (Family: none)	4, 5 1-3, 7, 8 10
X Y A	Urade, Y. et al., Biochemical, structural, genetic, physiological, and pathophysiological features of lipocalin-type prostaglandin D synthase., Biochem.Biophys.Acta., Vol.1482, No.1-2, pages 259 to 271, (2000)	4, 5 1-3, 7, 8 10

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
23 January, 2004 (23.01.04)

Date of mailing of the international search report
10 February, 2004 (10.02.04)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/16233

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Kanaoka, Y. et al., Cloning and crystal structure of hematopoietic prostaglandin D synthase., Cell, Vol.90, No.6, pages 1085 to 1095, (1997)	1-3,7,8
Y	JP 2002-238553 A (The Institute of Physical and Chemical Research), 27 August, 2002 (27.08.02), (Family: none)	7,8
Y	EP 1065213 A2 (Japan Tobacco Inc.), 27 August, 2002 (27.08.02), & JP 2001-69995 A	7,8
A	Bohm, H.J. et al., The development of a simple empirical scoring function to estimate the binding constant for a protein-ligand complex of known three-dimensional structure., J. Comput.Aided Mol.Des., Vol.8, No.3, pages 243 to 256, (1994)	7,8